

Weekly Report

2018.1217-2018.1223

1. This Week

Deep Learning Power Grid Program

1. Talk to Xia Jiazhi and Chen siming about last week's AI for VIS idea. Both of them suggests that we need to be careful to do that. And Chen suggests that I can think about the different pipelines of AI and Vis, and how to combine these two.
2. Read papers about signal processing.
3. Figure out how can signal propagates in a back propagation way.

Power Flow Project

1. Have a meeting with Zhao Zhe, Yang Wenzhuo and Wang Lidong.
2. The technical report is finished last week and sent to Huang. (Feedback not received.)
3. Figure out how to used the PSASP build-in program to compute whatever power flow we want and get intermediate result of iteration results.
4. Wang Lidong is now working on the backend part of the program.

Southern Power Grid Project

1. Have a meeting with Lu Jinxuan, Fei Zhijun and Lu Wenjie. Tasks are discussed and assigned.
2. Install oracle databased and import the data. (Oracle is the most difficult database to install and use, I asked Shao Ming and he said we can use other database as we want. But the data Kaihong gave us must use oracle to import. So I'm thinking about use oracle to export .sql format and use other simple databases.)

Others

1. Wavelines paper reduces pages.
2. Discuss with Zongzhuang How to revise and organize his paper.

Working Hour: (except nap and eat time)

8-9 hours / day

8 hours on Sunday

Total Working hour this week: 51hours

Paper Reading

1. Evaluating 'Graphical Perception' with CNNs

This paper evaluates how CNNs performs when applied to graphical perception tasks. It reproduces Cleveland and McGill's experiments, and measures human perception efficiency of different visual encodings and defines elementary perceptual tasks for visualization. In their experiment, they measure the graphical perceptual capabilities of four network architectures on five different visualization tasks and compare to existing and new human

performance baselines. The result is that under limited circumstances CNNs are able to meet or outperform human task performance. But in most cases, CNNs are not a good model for human graphical perception.

2. Surveying the complementary role of automatic data analysis and visualization in knowledge discovery

This paper suggests various ways to integrate visualization and data mining techniques toward a mixed-initiative knowledge discovery. It also explains strengths and weaknesses of information visualization and data mining and why these two domains need to use the other's techniques.

3.Multi-Label Zero-Shot Learning via Concept Embedding

4.Generative Adversarial Residual Pairwise Networks for One Shot Learning

5.Discriminative k-shot learning using probabilistic models

6.Multi-Label Zero-Shot Learning with Structured Knowledge Graphs

These four papers all introduce techniques used to solve zero/one/k-shot problems. Shot problem is indeed a classification problem, but different from classical classification problems, shot problems have much less samples in each class (one-shot means one sample for each class, etc.). As a result, using solutions for shot problems will less likely produce overfitting results.

2. Progress

Task	Progress	Time
Power Grid Paper with Deep Learning	1.Talk to others to get inspired and suggestions. 2.Read papers to evaluate ideas.	0226
Power Flow Project	1.Working on backend part 2.Technical report finished and sent to Huang.	In two weeks
Southern Power Grid Project	1.Install oracle database and import the data.	-
SQC paper	Delayed	-